

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Caine et al.)
For: A Keypad and Method for)
Detecting the Selection of One of)
a Plurality of Key Inputs)
Associated with a Single)
Keystroke)
Serial No.: 10/769,258)
Filed: January 30, 2004)
Examiner: Piziali, J.)
Art Unit: 2629)

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attention: Board of Patent Appeals and Interferences

APPELLANTS' BRIEF

This brief is in furtherance of the NOTICE OF APPEAL, mailed on March 22, 2007.

Any fees required under 37 C.F.R. §41.20, and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains these items under the following headings, and in the order set forth below (37 C.F.R. § 41.37(c)):

- I REAL PARTY IN INTEREST
- II RELATED APPEALS AND INTERFERENCES
- III STATUS OF CLAIMS

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I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Motorola, Inc., a Delaware corporation.

II. RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences.

III. STATUS OF CLAIMS

A. Status of all claims in the proceeding

1. Claims rejected: 1-22
2. Claims allowed: none
3. Claims withdrawn: none
4. Claims objected to: none
5. Claims cancelled: none

B. Identification of claims being appealed

The claims on appeal are: 1-22

IV. STATUS OF AMENDMENTS

Amendment, dated August 13, 2007, is being filed at the same time as the present appeal brief. The Examiner has not yet had a chance to consider the amendment, consequently the amendment to the claims has not yet been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A first aspect of the present invention (claim 1) pertains to a keypad. The keypad (100) includes one or more keys (102), where each key includes a contact surface and is associated with a primary input selection and three or more secondary input selections (page 4, lines 23-24), and where each secondary input selection is associated with a corresponding one of a plurality of switches (122) (page 5, lines 22-24; and page 10, lines 9-12). The keypad (100) further includes a selection indicator (142), which is coupled to the plurality of switches (122) and adapted for detecting one of a primary input selection and a secondary input selection (page 7, lines 1-4), when the key (102) is actuated, where one of the secondary input selections is indicated when only a corresponding one of the plurality of switches (122) is engaged when the key (102) is actuated (page 6, lines 11-13), and a primary input selection is indicated when any combination of more than one of the plurality of switches (122) are engaged when the key (102) is actuated (page 6, lines 17-19). The keypad (100) further provides where the corresponding one of the plurality of switches (122) that is associated with each of the secondary input selections is in a direct vertical alignment with the portion of the contact surface associated with the particular secondary input selection (FIGS. 1 and 2; page 5, lines 21-24; and page 6, lines 2-4 and 11-13), where the plurality of switches (122) are positioned and arranged horizontally relative to one another (FIG. 2).

A further aspect of the present invention (claim 18) is directed to an electronic device (104) with a keypad (100), where the keypad (100) includes a key (102) associated with a primary character having a first contact (122) associated with a first secondary character, a second contact (122) associated with a second secondary character, and a third contact (122) associated with a third

secondary character (page 4, lines 23-24), where the first contact, the second contact and the third contact are positioned and arranged horizontally relative to one another (FIG. 2). The key includes a contact surface having a portion associated with each of the primary character (page 6, lines 11-17), the first secondary character, the second secondary character and the third secondary character, where the portion of the contact surface associated with each of the secondary characters is in a direct vertical alignment with the associated contact (FIGS. 1 and 2; page 5, lines 21-24; and page 6, lines 2-4 and 11-13). The electronic device further provides where the closure of only one of the first contact (122), the second contact (122) and the third contact (122) during a predetermined time period enters the associated secondary character into the electronic device (page 6, lines 11-13), and where the closure of two or more of the first contact (122), the second contact (122) and the third contact (122) during the predetermined time period enters the primary character into the electronic device (104) (page 6, lines 17-19).

A still further aspect of the present invention (claim 19) is directed to a method of detecting the selection of one of a plurality of key inputs associated with a single key (FIG. 6; and Page 12, lines 1-2), where said key actuations include a primary input selection and three or more secondary input selections. The method includes monitoring (402) (page 12, lines 2-4) the state of three or more switches horizontally positioned and arranged relative to one another, each switch being associated with and directly vertically aligned with a corresponding one of the three or more secondary input selections (FIGS. 1 and 2; page 5, lines 21-24; and page 6, lines 2-4 and 11-13). A key actuation is then detected (404) (page 12, lines 4-5). If only one of the switches is engaged when the key actuation is detected, the selection of the secondary input positioned in direct vertical alignment with the engaged switch is indicated (412) (page 12, lines 14-15). If any combination of a plurality of switches is engaged, when the key actuation is detected, the selection of the primary input is indicated (408) (page 12, lines 11-13).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1-22 have been improperly rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.
2. Whether claims 1-17 have been improperly rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Whether claims 1-3, 5-8 and 11-20 have been improperly rejected under 35 U.S.C. §102(b) as being anticipated by Swanson, US Patent No. 6,541,715.
4. Whether claims 4, 9, 10, 21 and 22 have been improperly rejected under 35 U.S.C. §103(a) as being unpatentable over Swanson, '715, in view of Kato et al., US Patent No. 6,356,258.
5. Whether claims 12-14 have been improperly rejected under 35 U.S.C. §103(a) as being unpatentable over Swanson, '715, in view of Yu et al., US Patent No. 5,852,414.

VII. ARGUMENT

A. Rejections under 35 U.S.C. 112

1. Whether claims 1-22 have been improperly rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claims 1-22

The Examiner has raised respective rejections relative to each of 35 U.S.C. §112, first paragraph, and 35 U.S.C. §112, second paragraph, each of which are directed to a different concerns with the written description and the corresponding claims. The question to be addressed with regard to the issue raised under 35 U.S.C. §112, first paragraph, involves the written description requirement, and whether the claims as presently amended contains subject matter that was described in the specification in such a way as to reasonably convey to one skilled in the art, that the inventors at the time the application was filed had possession of the claimed invention.

More specifically, in alleging that the specification fails to comply with the written description requirement, the Examiner has focused on the claimed relationship of the switches and the portion of the key contact surfaces associated with a particular secondary input selection, as being positioned in direct vertical alignment. The Examiner alleges that the specification fails to provide support for such a feature. However contrary to the Examiner's assertions, FIG. 2 and portions of the related description provide support for just such a feature. More specifically, FIG. 2 highlights the outline of a key 102 (i.e. the corresponding layout of the same), and an exemplary circuit schematic, which includes multiple switches 122, each of which is located at a respective vertex of the key 102 (see page 5, lines 21-22 of the present specification), which is engaged when the corresponding one of the vertices is depressed (see page 5, lines 22-24). Placement of the respective switches at the vertex of the key gives the user a discrete location to engage, if and when it is desired to indicate a secondary input selection (see page 6, lines 11-12), such that it would be clear to one skilled in the art, that the applicant possessed the feature of the switches and the portion of the key contact surfaces associated with a particular secondary input selection, as being positioned in direct vertical alignment, when taken from the frame of reference noted in the claims where the plurality of switches are positioned and arranged horizontally relative to one another.

While the Examiner may be seeking a showing where the exact language can be found in the specification as originally filed, such a requirement is misplaced, as there is no such requirement.

As articulated by the Federal Circuit, the test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at the time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). It is well settled, that a determination as to whether the originally filed disclosure of the application reasonably conveys to the artisan an indication that the inventor had possession of the claimed subject matter, does not require that the claimed subject matter be described identically. Precisely how close the original description must come in order to comply with the description

requirement must be determined on a case-by-case basis. In re Wilder, 736 F.2d 1516, 1520, 222 USPQ 369, 372 (Fed. Cir. 1984) (emphasis added).

In the present instance, while the claimed subject matter is not described identically, there is no such requirement. Further, in view of at least the portions of the application noted above, one skilled in the art would understand that the inventors had possession of the later claimed subject matter, at the time the application was originally filed. Consequently, the corresponding rejection relative to independent claims 1, 18 and 19, and the claims which depend therefrom, namely claims 2-17 and 20-22 (which are the subject of a separately articulated, but related rejection), should be withdrawn.

2. Whether claims 1-17 have been improperly rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-17

While the rejection of claims 1-17 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is believed to be moot in view of the proposed amendment that has been filed with the present appeal brief, should entry of the same be deemed appropriate. In the event that entry of the after final amendment is denied, the pre-after final amendment is believed to be suitably definite to particularly point out and distinctly claim the subject matter which the applicants regard as the invention.

In raising an objection with respect to claim 1 (and indirectly the claims which depend therefrom), the Examiner has focused on a lack of an antecedent basis for the portion of the contact surface. However the claimed portion(s) of the contact surface are inherent relative to the contact surface of the key, especially where multiple associated switches corresponding to separate secondary input selections can be separately engaged dependent upon the manner in which the contact surface is engaged and the key is actuated, as otherwise provided in the claims. As a result, the inherent features do not need to be separately positively recited to be clearly

understood by one skilled in the art, and a portion of the contact surface would be understood to be associated with less than all of the contact surface and more particularly to the part that corresponds to a secondary input selection (relative to the portion of the claim in question and the corresponding context). The applicant would allege that one skilled in the art would understand the metes and bounds of the claims, as worded, with or without the further amendment proposed as part of the after final amendment being filed with the filing of the present appeal brief, so as to be understood as being clear. Consequently, the Examiner's assertion that the claims fail to particularly point out and distinctly claim the subject matter can not be supported, when viewed from the perspective of one skilled in the art, and the entirety and complete context of any one of the claims. As a result, the Examiner's rejection of claims 1-17 under 35 U.S.C. §112, second paragraph, should be overturned, unless the same is made moot by the entry of the after final amendment, which seeks to reduce the number of issues on appeal by finding common ground with the Examiner by way of the corresponding amendment, which expressly positively recites elements, which are otherwise believed to be inherent in the context of the rest of the claims.

B. Rejections under 35 U.S.C. 102

In order to properly support an alleged anticipation, the relied upon prior teaching must minimally make known each and every feature of the claims. However, in attempting to apply the relied upon reference Liu et al., '091, to each of the identified claims, the Examiner has failed to account for each of the claimed features.

3. Whether claims 1-3, 5-8 and 11-20 have been improperly rejected under 35 U.S.C. §102(b) as being anticipated by Swanson, US Patent No. 6,541,715.

Claims 1-3, 5-8 and 11-20

Relative to the alleged anticipation of at least independent claims 1, 18 and 19, which the Examiner alleges are anticipated by Swanson, '715, contrary to the Examiner's assertion

Swanson, '715, fails to make known each and every feature of claims 1, 18 and 19, and indirectly any of the claims, which depend therefrom. More specifically, Swanson, '715, fails to make known or obvious a claimed feature where the corresponding one of the plurality of switches associated with each of the secondary input selections is in direct vertical alignment with the portion of the contact surface associated with the particular secondary input selection (claim 1); a feature where the portion of the contact surface associated with each of the secondary characters is in a direct vertical alignment with the associated contact (claim 18); and/or a feature where each switch is associated with and directly vertically aligned with a corresponding one of the three or more secondary input selections (claim 19).

In Swanson, '715, there is no direct vertical alignment between the portion of the contact surface associated with a secondary input and the associated switch. Alternatively, the keys are engaged in a manner in which the associated switches are located opposite the portion of the contact surface along a diagonal. More specifically, looking down at the key from a perspective illustrated in FIG. 2 of the reference, an exemplary lateral facet 11, located in the upper left hand portion of the illustrated key and is associated with switch 22, which as can be seen in FIG. 3 is not in direct vertical alignment with lateral facet 11, but is alternatively in direct vertical alignment with lateral facet 13 (see col. 3, lines 38-51) and hence located more proximate to the lower right hand portion of the illustrated key. The noted paragraph at col. 3, lines 38-51 of the published reference further associates each of the other three lateral facets with a corresponding switch that, similarly, is not directly vertically aligned, where facet 12 is associated with switch 23, facet 13 is associated with switch 24 (cannot be seen – obstructed), and facet 14 with switch 21 (none of which are in direct vertical alignment). Consequently, contrary to the Examiner's assertion each and every feature of the claims has not been shown to be made known or obvious, and therefore the rejection of independent claims 1, 18 and 19, as well as any of the dependent claims 2-17 and 20-22, can not be maintained.

In responding to applicants' reasoning outlined in applicants' prior response, the Examiner generically asserts that the reference, Swanson, '715, teaches a contact surface that is stacked vertically with respect to the a plurality of switches, where the plurality of switches are positioned underneath the contact surface. However the Examiner appears to ignore the phrase

“direct vertical alignment”, and/or fails to give the phrase patentable weight, where a horizontal reference has been additionally established in the claims, and in so doing essentially fails to address applicants analysis wherein it is explained that the reference fails to show the particular switch and the corresponding portion of the contact surface associated with a particular secondary input being respectively directly above and below one another, hence the phrase “direct vertical alignment”. The cited reference, in fact, teaches an alignment that is not directly vertically aligned, but that is purposefully offset horizontally relative to the related portion of the contact surface and the corresponding switch to enable an alternative manner of actuation, which pivots the key as opposed to allowing for a more direct downward application of force for purposes of initiating a corresponding actuation of the associated switch. In essence, the relied upon reference teaches away from “direct vertical alignment”, and therefore cannot be said to make known or obvious each and every feature of the claims.

In failing to teach each and every feature of each of the independent claims, the Examiner has not only failed to allege a proper rejection relative to each of the independent claims, but has also failed indirectly to allege a proper rejection relative to the respective dependent claims. As a result, the Examiner’s rejection made final should minimally be overturned, reversed and/or withdrawn.

C. Rejections under 35 U.S.C. 103

4. Whether claims 4, 9, 10, 21 and 22 have been improperly rejected under 35 U.S.C. §103(a) as being unpatentable over Swanson, '715, in view of Kato et al., US Patent No. 6,356,258.

Claims 4, 9, 10, 21 and 22

Claims 4, 9, 10, 21 and 22 being dependent upon an allowable base claim, namely claims 1 or 19, as noted above, are similarly allowable, where the secondary reference fails to account for the above noted deficiencies, relative to the independent claims. Consequently the Examiner’s rejection made final of claims 4, 9, 10, 21 and 22 should similarly be withdrawn.

5. Whether claims 12-14 have been improperly rejected under 35 U.S.C. §103(a) as being unpatentable over Swanson, '715, in view of Yu et al., US Patent No. 5,852,414.

Claims 12-14

Claims 12-14 being dependent upon an allowable base claim, either directly or indirectly, namely claim 1, respectively, as noted above, are similarly allowable, where the secondary references fail to account for the above noted deficiencies in a context consistent with the respective independent claim. Consequently, the Examiner's rejection made final of claims 12-14 on the further articulated basis of obviousness should similarly be withdrawn.

Conclusion

In view of the above analysis, the applicants would assert, that the Examiner has failed to establish that the cited references either separately or in combination make known or obvious the presently pending claims. The applicants would respectfully request that the Examiner's decision to finally reject the presently pending claims be overturned, and that the claims be permitted to proceed to allowance.

Respectfully submitted,

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VIII

APPENDIX OF CLAIMS

The following is the text of the claims involved in this appeal:

1. A keypad comprising:

one or more keys, each key including a contact surface and being associated with a primary input selection and three or more secondary input selections, wherein each secondary input selection is associated with a corresponding one of a plurality of switches; and

a selection indicator coupled to the plurality of switches and adapted for detecting one of a primary input selection and a secondary input selection, when the key is actuated, wherein one of the secondary input selections is indicated when only a corresponding one of the plurality of switches is engaged, when the key is actuated, and a primary input selection is indicated when any combination of more than one of the plurality of switches are engaged, when the key is actuated

wherein the corresponding one of the plurality of switches associated with each of the secondary input selections is in a direct vertical alignment with the portion of the contact surface associated with the particular secondary input selection, where the plurality of switches are positioned and arranged horizontally relative to one another.

2. A keypad in accordance with claim 1 wherein the selection indicator is adapted for indicating a primary input selection when the combination of more than one of the plurality of switches are engaged, substantially simultaneously, when the key is actuated.

3. A keypad in accordance with claim 1 wherein said selection indicator includes a processor

coupled to the plurality of switches of the one or more keys.

4. A keypad in accordance with claim 3 wherein said keypad further comprises a memory element for storing one or more sets of prestored instructions used by the processor in detecting the selection of a primary input and a secondary input.
5. A keypad in accordance with claim 1 wherein the one or more primary input selections associated with each of the one or more keys substantially include numeric characters.
6. A keypad in accordance with claim 1 wherein the primary input selections are primarily associated with number entry.
7. A keypad in accordance with claim 1 wherein the three or more secondary input selections associated with each of the one or more keys substantially include non-numeric characters.
8. A keypad in accordance with claim 1 wherein the secondary input selections are primarily associated with text entry.
9. A keypad in accordance with claim 1 further comprising a mode selector coupled to the selection indicator, said mode selector adapted for distinguishing between a number entry mode and a text entry mode, wherein when in text entry mode the primary input selections for the one or more keys substantially include numeric characters and the secondary input selections for the one or more

keys substantially include non-numeric characters, and wherein when in number entry mode a secondary input selection detected for at least one of the one or more keys will be replaced by the corresponding primary input.

10. A keypad in accordance with claim 1 wherein one or more of the secondary input selections for at least one or more of the one or more keys is associated with multiple different input selections, wherein detecting the selection of the secondary input selection associated with multiple different input selections selects a first one of the associated multiple secondary input selections, and wherein detection of repeated sequential selections of the secondary input selection associated with multiple different input selections cycles the original input selection between the associated multiple secondary input selections.

11. A keypad in accordance with claim 1 wherein the contact surface of each of the one or more keys has a plurality of corners, wherein each of the plurality of switches corresponding to each of the secondary input selections are substantially located at a corresponding one of the corners of the contact surface.

12. A keypad in accordance with claim 11 wherein the contact surface for at least some of the one or more keys is a triangular shape, having three corners.

13. A keypad in accordance with claim 12 wherein the orientations in one or more directions of adjacent ones of the one or more keys are not aligned.

14. A keypad in accordance with claim 13 wherein adjacent ones of the one or more keys having a triangular shape are oriented in opposite directions.

15. A keypad in accordance with claim 1 wherein said keypad is incorporated as part of a portable electronic device.

16. A keypad in accordance with claim 15 wherein said portable electronic device is a wireless communication device.

17. A keypad in accordance with claim 16 wherein said wireless communication device is a cellular telephone.

18. An electronic device with a keypad comprising:

a key associated with a primary character having

 a first contact associated with a first secondary character,

 a second contact associated with a second secondary character, and

 a third contact associated with a third secondary character;

the first contact, the second contact and the third contact being positioned and arranged horizontally relative to one another; and

the key including a contact surface having a portion associated with each of the primary character, the first secondary character, the second secondary character and the third secondary

character, where the portion of the contact surface associated with each of the secondary characters is in a direct vertical alignment with the associated contact;

wherein closure of only one of the first contact, the second contact and the third contact during a predetermined time period enters the associated secondary character into the electronic device; and

wherein closure of two or more of the first contact, the second contact and the third contact during the predetermined time period enters the primary character into the electronic device.

19. A method of detecting the selection of one of a plurality of key inputs associated with a single key, where said key actuations include a primary input selection and three or more secondary input selections, said method comprising:

monitoring the state of three or more switches horizontally positioned and arranged relative to one another, each switch being associated with and directly vertically aligned with a corresponding one of the three or more secondary input selections;

detecting a key actuation;

if only one of the switches is engaged when the key actuation is detected, indicating the selection of the secondary input positioned in direct vertical alignment with the engaged switch; and

if any combination of a plurality of switches is engaged, when the key actuation is detected, indicating the selection of the primary input.

20. A method in accordance with claim 19 wherein the determination of any combination of a plurality of switches being engaged, when the key actuation is detected, includes a determination

that any combination of a plurality of switches is engaged, substantially simultaneously, when the key actuation is detected.

21. A method in accordance with claim 19 wherein the primary input selections are substantially associated with numeric characters and the secondary input selections are substantially associated with non-numeric characters, said method further comprising detecting a mode selection, which distinguishes between a number entry mode and a text entry mode, and replacing secondary input selection indication with a primary input selection indication, when in number entry mode.

22. A method in accordance with claim 19 wherein one or more of the secondary input selections for at least one or more of the one or more keys is associated with multiple different input selections, said method further comprising detecting the selection of the secondary input selection associated with multiple different input selections, selecting a first one of the associated multiple secondary input selections, detecting repeated sequential selections of the secondary input selection associated with multiple different input selections, and in response to repeated sequential selections, cycling the original input selection between the associated multiple secondary input selections.

IX EVIDENCE APPENDIX

None

X RELATED PROCEEDINGS APPENDIX

None